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July 28, 1995

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By Hand

William F. Caton  
Acting Secretary  
Federal Communications Commission  
1919 M Street, NW  
Washington, DC 20554

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Re: ET Docket No. 94-124

Dear Mr. Caton:

On behalf of CellularVision, enclosed for filing in the above-referenced proceeding are an original and four (4) copies of Supplemental Comments filed in response to Commission Public Notice DA 95-1415 (June 23, 1995).

Please direct any questions regarding this matter to the undersigned.

Sincerely,



Michael R. Gardner  
Counsel, CellularVision

Enclosures

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List A B C D E

Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, DC 20554

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In the Matter of

Amendment of Parts 2 and 15 of the  
Commission's Rules to Permit Use of  
Radio Frequencies Above 40 GHz for  
New Radio Applications  
\_\_\_\_\_

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) ET Docket No. 94-124  
) RM-8308  
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**SUPPLEMENTAL COMMENTS OF CELLULARVISION**

CellularVision,<sup>1</sup> by its attorneys, hereby files Supplemental Comments in response to the frequency allocation table of the European Radiocommunications Committee ("ERC") of the European Conference of Postal and Telecommunications Administrations ("CEPT") placed into the record in the above-referenced proceeding by the Commission (Public Notice DA 95-1415, June 23, 1995).

The Commission has asked commenters to address whether it is desirable and feasible to harmonize the Commission's proposal in the instant proceeding with the

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<sup>1</sup> For purposes of this document, references to "CellularVision" include the following related companies which are controlled by common principals: Suite 12 Group, which founded the CellularVision technology for the Local Multipoint Distribution Service in the 27.5-29.5 GHz band and was tentatively awarded a pioneer's preference by the Commission, see Notice of Proposed Rulemaking, Order, Tentative Decision and Order on Reconsideration, 8 FCC Rcd 557 (1993), CellularVision Technology and Telecommunications, Inc., which holds the patent for the CellularVision technology, and CellularVision of New York, L.P., which operates a commercial LMDS video service as an alternative to cable television in the New York Primary Metropolitan Statistical Area ("PMSA") in the 27.5-28.5 GHz band pursuant to a commercial license granted by the Commission in 1991. See Hye Crest Management, Inc., 6 FCC Rcd 332 (1991).

ERC table of allocations, and whether the proposals in either the ERC table or the instant proceeding can or should be changed to facilitate worldwide marketing and use of radio transmitting equipment.

While it may be desirable to harmonize the FCC and ERC frequency allocation tables, such harmonization is not necessarily appropriate with regard to millimeter wave band frequencies. As CellularVision has stated in this proceeding, propagation characteristics at specific frequencies in the millimeter wave frequency bands are radically different depending on climate zone, resulting in drastic variations in performance in countries in different climatic regions. See Comments of CellularVision, ET Docket No. 94-124, January 30, 1995, page 6. Accordingly, the ability to achieve economic viability via uniformity among international allocations in these frequency bands is illusory and unrealistic. While it may be instructive to consider how other countries and regions of the world are allocating particular frequencies, due to the fundamental impact of the climate on propagation characteristics in the millimeter wave bands, one country should not be constrained to follow the path taken elsewhere, particularly where doing so would hinder the development of new services.

For example, in the Commission's rulemaking proceeding involving the nationwide licensing of the Local Multipoint Distribution Service ("LMDS"), opponents of the Commission's proposed allocation of 28 GHz spectrum for LMDS tried to abort the Commission's proposal due to unfounded concerns about uniformity in international frequency allocations and unsupported claims about the economic

viability of LMDS at 40 GHz in the United States.

The Commission has envisioned LMDS in the 28 GHz band as a flexible broadband service that will offer domestic and international consumers an array of video, telephony, data and interactive services. See Action in Docket Case, FCC Proposes Band Plan for LMDS, FSS and MSS ("FCC Band Plan") (CC Docket No. 92-297), July 13, 1995, page 1. In Europe, the CEPT, based upon United Kingdom climatic conditions and testing, has recommended that a 40 GHz Multipoint Video Distribution Service ("MVDS"), a limited capacity (25-30 channels), spectrum inefficient (25-30 channels requiring 2 GHz of spectrum) and high cost (e.g., would require 11 times as many cells to cover the New York Basic Trading Area) video service be deployed. Based on this CEPT recommendation, various satellite interests argued that the Commission should move LMDS to the 40 GHz band, citing a need for international consistency and claiming that LMDS would be economically viable in the 40 GHz band in the United States. In response to the claims of these satellite parties, LMDS system designers, operators and equipment manufacturers developed a substantial record in the instant proceeding discrediting the claim that LMDS would be viable at 40 GHz in the United States.

Based on significant differences in signal propagation characteristics, component technology and system implementation, CellularVision, the pioneer of LMDS, projected the cost of providing LMDS service in the United States at 40 GHz to be grossly more expensive than the cost at 28 GHz, rendering 40 GHz LMDS economically unviable. See Reply Comments of CellularVision, ET Docket No. 94-124,

March 1, 1995, page 2.

Similarly, Texas Instruments, a proponent of another LMDS system design, concluded that "[t]he 40 GHz band is not technically and operationally comparable with 28 GHz operation as claimed by the FSS proponents," recognizing that the climatic differences between Europe and the United States is so different that "any comparison of operational similarities at 40 GHz in the two geographical regions is irrelevant." Comments of Texas Instruments, ET Docket No. 94-124, February 27, 1995, page 9.

Additionally, Video/Phone Systems, Inc., a developer of yet another LMDS system design, labeled as "spurious" the claims of Teledesic, Hughes, TRW and NASA that LMDS operating conditions and deployment costs in the 28 GHz and 41 GHz bands would be the same, and stated that "the operating conditions for an LMDS-type service in the 41 GHz band are substantially more onerous than those at 28 GHz, and the implementation costs would be commensurately higher, even with the employment of the latest state-of-the-art technology. Reply Comments of Video/Phone Systems, Inc., ET Docket No. 94-124, March 3, 1995, pages 6-7.

AEL Industries, Inc., a leading supplier of state-of-the-art advanced technology millimeter wave antennas, receivers and transmitters, stated that "[t]he increases in path loss, rain attenuation and component loss and complexity make LMDS at 40 GHz impractical and not economically feasible." Reply Comments of AEL Industries, Inc., ET Docket No. 94-124, March 1, 1995, page 1.

Titan Information Systems Corporation ("Titan"), who through its parent, The

Titan Corporation, has a long history in the design, development, manufacture and service of advanced communications systems using satellite, microwave, optical and wireline propagation means, concluded that "LMDS is not now, nor will it be in the foreseeable future, technically or economically viable within the 40 GHz band." Reply Comments of Titan, ET Docket No. 94-124, March 1, 1995, page 3. Thus, Titan cautioned that if the Commission were to move LMDS to the 40 GHz band, the Commission would "completely eliminate LMDS as a competitive alternative to cable for the delivery of multi-channel television, telephony and other information services." Id., at Summary at i.

Similarly, mm-Tech, Inc., a manufacturer of LMDS infrastructure equipment who was a member of the Commission's LMDS/FSS 28 GHz Negotiated Rulemaking Committee, stated that if the FCC were to move LMDS to the 40 GHz band, "it is likely that the U.S. will either wind up with a system with inferior performance at higher cost that does not match systems deployed world wide, or more likely, be left with no LMDS at all. Reply Comments of mm-Tech, Inc., ET Docket No. 94-124, February 28, 1995, page 2.

M/A-COM, Inc., a leading supplier of radio frequency, microwave and millimeter wave semiconductors and components, explained that the "two frequency bands [28 GHz and 41 GHz] are sufficiently separated and have sufficiently different propagation characteristics that, in our opinion, they are likely to be used differently. The 28 GHz band is well suited for a video distribution service to the general public, which employs wide beam low gain transmitting antennas. A service tailored for the 41 GHz band,

on the other hand, is more likely to employ narrower beam, higher gain antennas to provide a more specialized service to a more select customer base. However it is configured, the 41 GHz service is likely to be significantly more expensive to provide than the 28 GHz service for subscriber and infrastructure hardware." Reply Comments of M/A-COM, Inc., February 22, 1995, page 1.

Pacific Telesis Enhanced Services, Pacific Bell Mobile Services and Telesis Technologies Laboratory ("Pacific Telesis") noted that "equipment and electronics are not sufficiently developed in the 40+ GHz range," and that "moving LMDS to 40 GHz will result in smaller areas of coverage per transmitter and increased costs for the users of these systems, to the point that LMDS economic viability may be impaired in the near-term." Reply Comments of Pacific Telesis, ET Docket No. 94-124, March 1, 1995, page 3.

Accordingly, a diverse and respected group of entities involved in the LMDS industry overwhelmingly urged the Commission in this proceeding not to view 40 GHz as an alternative to 28 GHz for LMDS. It is clear that any attempt to deploy LMDS in the 40 GHz band will severely stunt if not kill LMDS in the United States, and deny LMDS to countless countries that could benefit the most from this wireless platform for video, telephony and data services. By contrast, the 28 GHz band offers a vehicle for the deployment of LMDS systems throughout the world. The Commission appropriately followed these recommendations of the LMDS industry when it proposed recently to allocate a total of 1 GHz in the 28 GHz band for LMDS. See FCC Band Plan. While it is clear from the record in the instant proceeding that LMDS would not

be technically and economically viable in the 40 GHz band in the United States today, it is possible that as technology advances, and 40 GHz equipment is developed and becomes commercially available, other specialized services could be suitable for the 40 GHz band in the future.

Finally, while harmonization of international spectrum allocations may be necessary as a matter of treaty law in order to prevent interference from one country to another, that is unlikely to occur at 40 GHz because of the very short propagation distances. As a result, the only possible basis to pursue international harmonization at 40 GHz would be to provide for equipment commonality on a worldwide basis. Equipment commonality, however, is a very complex issue and cannot be addressed appropriately merely by reviewing the table of allocations set forth in the ERC report. Equipment commonality depends on a number of considerations, including power limits, bandwidths, frequency stability requirements and safety requirements imposed by organizations such as ANSI and IEEE. None of that information is contained in the ERC report, nor is it a subject that is within the scope of ET Docket No. 94-124, which is limited to frequency allocation issues. There are more fundamental issues affecting equipment commonality than simply frequency allocations that are beyond the scope of this proceeding; for example, Europe uses and will continue to use an 8 MHz bandwidth for television broadcasting, while the United States uses and will continue to use 6 MHz.


Accordingly, while harmonization of spectrum uses among different parts of the world may serve the U.S. public interest under some circumstances, the ERC report



provides no basis for reaching such a conclusion with respect to the 40 GHz band. Climatic differences and video bandwidth differences virtually assure that system designs will vary from one part of the world to another, even if the allocation tables were harmonized. Thus, any benefits from harmonizing the allocation tables would be minor, and could not in any way justify the elimination of the U.S.-designed 28 GHz LMDS service in favor of a European-designed 40 GHz MVDS.

Respectfully submitted,

CellularVision

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